

Listing of the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1 - 34. (Cancelled)

~~1~~ ~~35~~. (currently amended) A nucleic acid molecule comprising ~~two or more~~ multiple copies of a repeat-containing sequence and multiple restriction enzyme cleavage sites, wherein said repeat-containing sequence is a double-stranded polynucleotide having from about 5 to about 1000 base pairs, and wherein the top strand of said repeat-containing sequence has substantially the same percentage of each respective nucleotide as in the bottom strand, and wherein a said restriction ~~site is~~ sites are created by the junction of adjacent copies of said repeat-containing sequence.

~~2~~ ~~36~~. (previously added) The nucleic acid molecule of claim ~~35~~, wherein said nucleic acid molecule is a DNA molecule.

~~3~~ ~~37~~. (previously added) The nucleic acid molecule of claim ~~35~~, wherein said nucleic acid molecule is an RNA molecule.

~~4~~ ~~38~~. (previously added) The nucleic acid molecule of claim ~~35~~, wherein said nucleic acid molecule is a DNA/RNA hybrid molecule.

~~5~~ ~~39~~. (previously added) The nucleic acid molecule of claim ~~35~~, wherein said repeat-containing sequence is a double stranded polynucleotide having from about 5 to about 100 base pairs.

~~6~~ ~~40~~. (previously added) The nucleic acid molecule of claim ~~35~~, wherein said repeat-containing sequence is a double stranded polynucleotide having about 10 base pairs.

7 ~~41.~~ (previously added) The nucleic acid molecule of claim ~~35~~¹, wherein said repeat-containing sequence comprises a palindromic nucleotide sequence.

8 ~~42.~~ (currently amended) A The nucleic acid molecule of Claim ~~35~~¹, wherein comprising two or more copies of a repeat-containing sequence, wherein a restriction site separates adjacent copies of said repeat-containing sequence, and wherein the nucleotide sequence of the top strand of said repeat-containing sequence is selected from the group consisting of: ATCTCAGGAT (SEQ ID NO: 1), ATCAGTCGAT (SEQ ID NO: 2), ATCGCATGAT (SEQ ID NO: 3), ATCATGCGAT (SEQ ID NO: 4), and complements thereof the complement of SEQ ID NO:1, the complement of SEQ ID NO: 2, the complement of SEQ ID NO: 3 and the complement of SEQ ID NO: 4.

9 ~~43.~~ (previously added) The nucleic acid molecule of claim ~~35~~¹, wherein said nucleic acid molecule comprises from about 2 to about 500 copies of said repeat-containing sequence.

10 ~~44.~~ (previously added) The nucleic acid molecule of claim ~~35~~¹, wherein said nucleic acid molecule comprises from about 20 to about 100 copies of said repeat-containing sequence.

11 ~~45.~~ (previously added) The nucleic acid molecule of claim ~~35~~¹, wherein said nucleic acid molecule comprises from about 200 to about 300 copies of said repeat-containing sequence.

12 ~~46.~~ (previously added) The nucleic acid molecule of claim ~~35~~¹, wherein said restriction site is a restriction site that produces blunt-ends upon restriction digestion.

¹³ ~~47~~. (currently amended) The nucleic acid molecule of claim ¹² ~~46~~, wherein said restriction site is selected from the group consisting of: AluI, DraI, Eco47III, EcoRV, FspI, HpaI, MscI, NruI, PvuII, RsaI, ScaI, SmaI, SspI, StuI, and ~~ThaI and DraI~~.

¹⁴ ~~48~~. (previously added) The nucleic acid molecule of claim ¹⁴ ~~35~~, wherein said restriction site is a restriction site that produces sticky-ends upon restriction digestion.

¹⁵ ~~49~~. (previously added) The nucleic acid molecule of claim ¹⁴ ~~48~~, wherein said restriction site is selected from the group consisting of: AvaI, BamHI, BanII, BglII, ClaI, EcoRI, HindIII, HpaII, KpnI, MseI, NcoI, NdeI, NotI, PstI, PvuI, SacI, SalI, XbaI and XhoI.

¹⁶ ~~50~~. (previously added) The nucleic acid molecule of claim ¹ ~~35~~, wherein said nucleic acid molecule is in circular form.

¹⁷ ~~51~~. (previously added) The nucleic acid molecule of claim ¹ ~~35~~, wherein said nucleic acid molecule is in linear form.

³⁷ ~~52~~. (currently amended) A vector comprising a nucleic acid molecule comprising two or more multiple copies of a repeat-containing sequence and multiple restriction enzyme cleavage sites, wherein said repeat-containing sequence is a double-stranded polynucleotide having from about 5 to about 1000 base pairs, and wherein the top strand of said repeat-containing sequence has substantially the same percentage of each respective nucleotide as in the bottom strand, and wherein a said restriction site is sites are created by the junction of adjacent copies of said repeat-containing sequence.

³⁸ ~~53~~. (previously amended) The vector of claim ³⁷ ~~52~~, wherein said vector comprises one or more origins of replication or one or more selectable markers.

⁴¹ ~~54~~. (previously added) The vector pAH102.4

¹⁸
~~55.~~ (previously added) A sizing ladder comprising two or more nucleic acid fragments, wherein said sizing ladder is produced by at least partially digesting the nucleic acid molecule of claim ~~35~~¹ with a restriction endonuclease that cleaves at said restriction site.

¹⁹ ~~56.~~ (previously added) The sizing ladder of claim ~~55~~¹⁸, wherein said two or more nucleic acid fragments are of varying sizes, and wherein the size of each nucleic acid fragment is a multiple of the size of said repeat-containing sequence.

²⁰ ~~57.~~ (previously added) The sizing ladder of claim ~~56~~¹⁹, wherein said sizing ladder comprises multiple nucleic acid fragments increasing in size by 10 base pair increments, the largest fragment being 330 base pairs in length.

²¹ ~~58.~~ (previously added) The sizing ladder of claim ~~57~~¹⁸, wherein said nucleic acid fragments are single stranded.

²⁵ ~~59.~~ (previously added) The sizing ladder of claim ~~58~~¹⁸, wherein said nucleic acid fragments are detectably labeled.

²⁶ ~~60.~~ (previously added) The sizing ladder of claim ~~59~~²⁵, wherein said nucleic acid fragments are detectably labeled with a radiolabel, a fluorescent label or a chemiluminescent label.

²² ~~61.~~ (previously added) The sizing ladder of claim ~~58~~²¹, wherein said nucleic acid fragments are detectably labeled.

²³ ~~62.~~ (previously added) The sizing ladder of claim ~~61~~²², wherein said nucleic acid fragments are detectable labeled with a radiolabel, a fluorescent label or a chemiluminescent label.

³¹ ~~63.~~ (previously added) A host cell comprising the nucleic acid molecule of claim ~~35~~¹.

³⁹ ~~64.~~ (previously added) A host cell comprising the vector of claim ~~52~~³⁷.

³²~~65~~. (previously added) ^A method for making a sizing ladder, said method comprising:

(a) mixing the nucleic acid molecule of claim ~~35~~ with a restriction enzyme that cleaves at said restriction site; and

(b) incubating said mixture under conditions favoring the cleavage of said nucleic acid molecule at said restriction site.

³³~~66~~. (previously added) The method of claim ~~65~~ ³², further comprising treating said mixture under conditions favoring the formation of single-stranded nucleic acid molecules.

³⁴~~67~~. (previously added) The method of claim ~~66~~ ³³, wherein said conditions favoring the formation of single-stranded nucleic acid molecules are heat denaturation or chemical denaturation.

²⁷~~68~~. (previously added) A method for determining the size of a nucleic acid molecule, said method comprising:

(a) separating the sizing ladder of claim ~~55~~ ¹⁸ and said nucleic acid molecule according to size; and

(b) determining the size of said nucleic acid molecule by comparison to said sizing ladder.

²⁸~~69~~. (previously added) The method of claim ~~68~~ ²⁷, wherein said separating is accomplished by electrophoresis on an agarose gel.

²⁹~~70~~. (previously added) The method of claim ~~68~~ ²⁷, wherein said separating is accomplished by electrophoresis on an a polyacrylamide gel.

³⁵~~71~~. (previously added) A kit comprising one or more containers, wherein a first container contains the nucleic acid molecule of claim ~~35~~ ¹.

²⁴~~72~~. (previously added) A kit comprising one or more containers, wherein a first container contains the sizing ladder of claim ¹⁸~~53~~.

³⁰~~73~~. (previously added) The nucleic acid molecule of claim ¹~~35~~, wherein said nucleic acid molecule is a cosmid or plasmid.

³⁶~~74~~. (previously added) The nucleic acid molecule of claim ¹~~35~~, wherein said nucleic acid molecule is linear.

⁴⁰~~75~~. (previously added) A sizing ladder comprising two or more nucleic acid fragments, wherein said sizing ladder is produced by at least partially digesting the vector of claim ³⁷~~52~~ with a restriction endonuclease that cleaves at said restriction site.

⁴²~~76~~. (previously added) A method for making a sizing ladder, said method comprising:

(a) mixing the vector of claim ⁴¹~~54~~ with a restriction enzyme that cleaves at a restriction site of said vector; and

(b) incubating said mixture under conditions favoring the cleavage of said nucleic acid molecule at said restriction site.

⁴³~~77~~. (previously added) A kit comprising one or more containers, wherein a first container contains the vector of claim ⁴¹~~54~~.